MEETING REPORT

9 December 2003 Science Advisory Panel Meeting
East Contra Costa County Habitat Conservation Plan / Natural Communities Conservation Plan

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INTRODUCTION

This report serves as the meeting record for the fourth Science Advisory Panel (Panel) meeting for the East Contra Costa County Habitat Conservation Plan / Natural Community Conservation Plan (HCP / NCCP). The report was prepared by the chair and facilitator of the Panel. The chair ensured that the scientific views of the Panel were articulated clearly. The facilitator served in an editorial capacity to ensure that the report was clear and responded explicitly to the issues and questions raised by the Habitat Conservation Plan Association (HCPA) Team. All Panel members have had the opportunity to review this document.

The body of the report contains comments from the Panel and, where applicable, responses of the HCPA Team to the Panel's requests for clarification on various issues. The Appendix summarizes comments from the public.

The 9 December Panel meeting began at 11:00 A.M. In addition to the Panel members, attendees included Erica Fleishman (facilitator), John Kopchik and Abby Fateman (Contra Costa County), David Zippin (Jones & Stokes), Carl Wilcox, Brenda Johnson, and Janice Gan (California Department of Fish and Game), Suzanne Marr (Environmental Protection Agency), Brad Olson (East Bay Regional Park District), and Sheila Larsen (U.S. Fish and Wildlife Service). Also present were Karim Al-Khafaji (note-taker) and one member of the public (John Slaymaker, Greenbelt Alliance).

Most of the discussion during the meeting focused on two sets of issues, the conservation strategy and adaptive management and monitoring. There was also an open discussion of the scientific advisory process.

Following a public comment period, the meeting adjourned at 3:00 P.M.

PRELIMINARY DISCUSSION AND UPDATES

Fleishman reviewed the objectives for the fourth meeting of the Science Advisory Panel.

David Zippin described several of the outcomes that have resulted from the Panel's feedback during previous meetings. For example, maps of small-scale features were revised in spring 2003. After four days of field work and reexamination of aerial photographs (including recent color photographs obtained by Contra Costa County), land cover maps were updated to reflect the current distribution of natural communities. Particular attention was focused on ponds, alkali grasslands and wetlands, seasonal wetlands, rock outcrops, and riparian woodland and scrub. Ruderal, cropland, pasture, and grassland categories were refined. The entirety of Clayton (2417 acres) and several smaller parcels were added to the inventory area.

Profiles of covered species also were revised in response to feedback from the Panel. All profiles were updated using new references. The model for San Joaquin spearscale was eliminated. Model assumptions were refined for five species: Swainson's Hawk, California red-legged frog, foothill yellow-legged frog, California tiger salamander, and giant garter snake. Conservation measures, biological goals and objectives, and land acquisition zones were revised. Habitat models were run again, and distribution maps were revised.

In addition, the impact analysis was revised, with a net reduction of 3600 acres. Antioch (5018 acres) was removed from the permit area following its decision not to participate in the HCP / NCCP. Urban parcels slated for development were refined, and rural infrastructure projects (e.g., major roads, utilities, operations and maintenance) were added. In part because it is so difficult to predict urban growth over a 30-year period, and to remove the HCP / NCCP from debate about the urban limit line, two permit areas were developed. The preliminary draft initial permit area covers 12,100 acres, while the preliminary draft maximum permit area covers 15,108 acres.

Interim projects

The new NCCP Act provides that science advisors are to be consulted regarding interim projects. John Kopchik provided an overview of existing and potential future interim projects, projects that are in progress during development of the HCP / NCCP. Kopchik pointed out that with the exception of areas within Antioch and a small area west of Pittsburg, potential interim projects all are located outside the high and medium priority areas for conservation acquisition. After clarifying that the Cypress Lakes project, a 1300-acre development in the northeast corner of the inventory area, was approved in 1989, the Panel concurred that interim projects are unlikely to prevent implementation of the HCP / NCCP.

CONSERVATION STRATEGY

• New sources of data or relevant advances in conservation biology and / or ecology of covered species and communities

1. *Erodium macrophyllum*, which has been collected in the impact area, recently was determined to be sufficiently distinct from other species of *Erodium* to warrant its own monotypic genus, *California*. According to Dianne Lake, two people have observed the species in Map Section B2 within the last ten years. Barbara Ertter provided the HCPA Team with coordinates for *California macrophylla*.

2. A small suite of plants that are in the California Native Plant Society inventory, but are not covered by the HCP, occur in the inventory area. Barbara Ertter also provided the HCPA Team with coordinates for these records. Within the Diablo flora, the following species occur (CNPS List number in parentheses).

Eriophyllum jepsonii (4)
Galium andrewsii gatense (4)
Linanthus ambiguus (4)
Phacelia phacelioides (1B)
Ranunculus lobbii (4)
Sanicula saxatilis (1B)
Streptanthus albicus peramoenus (1B)
Streptanthus hispidus (1B)
Viburnum ellipticum (2)

Within the lowlands (mostly alkali grassland), the following species occur.

Eryngium racemosum (1B): near Discovery Bay West, UC1729582
Fitillaria agrestis (4): near Byron, Antioch
Lasthenia conjugens (1B): old records from around Antioch
Lasthenia ferrisiae (4): around Byron, Clifton Court Forebay

The most noteworthy record is the relatively recent discovery of *Eryngium racemosum* near Discovery Bay West. Distributions of several species on the CNPS inventory list converge in Subzone 3b (Russellman Creek drainage). Urban development in Subzone 3b and associated efforts to reduce fire hazard in the urban / wildland interface likely would degrade ecological conditions on the north slope of Mt. Diablo.

3. An *Eryngium* that occurs on grassy slopes at intermediate elevation in several parts of the inventory area (e.g., Round Valley, Black Diamond) is currently being investigated as a possible undescribed species. This undescribed taxon has a different geographic distribution and resource requirements than the other *Erygium* in the area, *Eryngium aristulatum*.

4. The paper on the impacts of livestock grazing on native forbs, used by the HCPA Team in manuscript form (cited in the HCP / NCCP as “in press”), has now been published. The citation is

Hayes, G.F. and K.D. Holl. 2003. Cattle grazing impacts on annual forbs and vegetation compostition of mesic grasslands in California. Conservation Biology 17:1694–1702.

5. Carla D'Antonio, Sue Bainbridge, and other scientists with expertise in grassland ecology have produced a review of grassland management and fire regimes. This manuscript is not published, and, as far as the Panel knows, is not likely to be published in the near future. The citation for the report is

> D'Antonio, C., S. Bainbridge, C. Kennedy, J. Bartolome, and S. Reynolds. Ecology and restoration of California grasslands with special emphasis on the influence of fire and grazing on native grassland species. Unpublished ms.

To request a copy of this manuscript, contact Carla D'Antonio, dantonio@socrates.berkeley.edu, (510) 643-6341, http://ib.berkeley.edu/labs/.

6. An article by Fehmi and Bartolome on burning and grazing might be relevant: Fehmi, J.S. and J.W. Bartolome. 2003. Impacts of livestock and burning on the spatial patterns of the grass *Nassella pulchra* (Poaceae). Madrono 50(1):8–14.

7. A recent article on managing grasslands in diequilibrium systems (like the inventory area) also may be useful: Jackson, R.D. and J.W. Bartolome. 2002. A state-transition approach to understanding nonequilibrium plant community dynamics in Californian grasslands. Plant Ecology 162:49–65.

8. Another potentially useful article suggests that management often aims to create environmental homogeneity in order to limit competitive interactions, but heterogeneity of management may be preferable for maximizing native biodiversity, particularly in non-equilibrium systems. Fuhlendorf, S.D. and D.M. Engle. 2001. Restoring heterogeneity on rangelands: ecosystem management based on evolutionary grazing patterns. BioScience 51:625–632.

9. The Panel agreed that there did not appear to be any major data gaps that are likely to affect the design and success of the conservation strategy.

• The revised conservation strategy for the preliminary draft initial permit area focuses land acquisition in Zones 2, 3, and 4 and de-emphasizes land acquisition in Zones 5 and 6. Is this approach warranted biologically?

1. The Panel expressed concern that development in Zones 5 and 6 might fragment natural vegetation before 12,000 acres have been acquired, and asked the HCPA Team to clarify whether zoning laws will limit urban growth within the initial permit area and in unincorporated areas. The HCPA Team and a representative of the California Department of Fish and Game responded that much of the land near the Byron airport is remote and has limited access to water, so extensive urban or suburban development (including ranchettes) is thought to be unlikely on a large scale. Fragmentation of natural communities is more likely to result from development of utilities and other types of infrastructure. Some land in the vicinity is leased for wind farms, a land use that is not covered by the HCP / NCCP. The HCPA Team also noted that many of the parcels in Zone 6 are small, and acquisition of these parcels likely would be expensive.

2. Because alkali grasslands and several of the covered plants are concentrated in Zone 5, acquisition in Zone 5 should focus on those remnants. Panel members asked the HCPA Team

whether conservation easements could be used to protect alkali grasslands. The HCPA Team responded that there is no tradition or market for conservation easements in the inventory area, and the conservation strategy has tended to avoid easements in order to be conservative financially. Panel members encouraged the HCPA Team to explore other tools to protect patches of alkali grassland, such as joint purchase of larger parcels followed by subdivision. The HCPA Team commented that in some cases, state parks and other groups have purchased agricultural lands and subsequently rented a portion of the land to farmers; that model may be appropriate for achieving conservation goals of the HCP / NCCP. Some Panel members suggested that the conservation strategy seek to link alkali grassland in the Byron area with California Department of Fish and Game easements adjacent to the county line in Alameda County.

3. It may be short-sighted to focus on corridors for kit fox in Zone 2 if the animals do not have a way to move through Zones 5a / 5b to and from Alameda County to Zone 2. Connectivity between Contra Costa and Alameda counties is crucial for the sustainability of kit fox in this region. Wind farms may not indicate stability of human land use but instead may prove to be precursors to more intensive development. Therefore, it may be prudent to preserve lands in 5a and 5b before they are developed.

4. On the one hand, the conservation strategy should take advantage of any opportunities to link alkali grasslands in the Byron area with protected lands near Mt. Diablo. Most of the impacts to natural vegetation are occurring in grasslands on flat lands, so it is important to preserve similar patches of vegetation in the inventory area (like the patches in Zone 5).

5. On the other hand, it may be worthwhile to de-emphasize Zones 5 and 6 and instead emphasize Zone 4a because land acquisition in Zone 4a will contain the potential spread of rural ranchettes along Morgan Territory Road and the sometimes-extensive indirect effects that rural ranchettes often have on adjacent lands. For example, there may be pressure to clear shrublands to reduce the probability of fire in response to recent fires in southern California. Therefore, in the interests of conserving natural communities and maintaining ecological processes, it may be useful to discourage people from developing rural ranchettes in Zone 4a. A mosaic of housing and patches of brush or dense woodland, especially in this hilly area, should be avoided. Ranchette development also is likely to facilitate invasion of non-native species.

6. Conservation in Subzone 4a provides substantial benefits for the Alameda whipsnake by protecting core habitat for this species.

7. The southern half of Zone 3B, on the north side of Mt. Diablo, contains serpentine grassland and is vulnerable to incursion of ranchettes. Development of rural ranchettes in Zone 4, or development beyond a certain threshold, could be used as a trigger for acquisition or for adjusting the prioritization of acquisition targets.

8. On its own merits, acquisition in Zones 2 and 4 makes sense because those areas contain core habitat for Alameda whipsnake and other species.

9. On the whole, there are arguments for emphasizing land acquisition in Zones 2, 3, and 4 as well as in Zones 5 and 6. There are biological advantages to acquisition in both Subzones 4a/4h

and Subzones 5a/5b, and there are biological trade-offs in emphasizing acquisition in either area. In general, the Panel suggested that the HCPA Team attempt to augment acquisitions in Zone 5 because of the biological benefits to several covered plants, alkali grassland, habitat linkages, and San Joaquin kit fox.

• In the cultivated agriculture area (Zone 6), the conservation strategy may include the use of multi-year contracts with farmers to maintain and enhance suitable habitat for Swainson's Hawk (e.g., raise certain kinds of crops, plant trees as windbreaks and nesting habitat), as opposed to permanent conservation easements with crop restrictions. Is this approach biologically valid?

1. Anecdotal evidence suggests that the abundance of Swainson's Hawk is increasing in the western part of its distributional range (e.g., San Joaquin Valley and Contra Costa County), and that the edge of its geographic distribution is moving west. Relatively few individuals are believed to be present in east Contra Costa County at this time. If the westward distributional expansion continues, however, and if land management is consistent with resources needs of the hawk, then the inventory area could become more important in the future.

2. Some members of the Panel questioned whether the multi-year contract approach would be consistent with persistence of Swainson's Hawk. Others commented that the hawk is opportunistic and will cover a large area in order to take advantage of available resources. The hawk can utilize grasslands, and alfalfa farming in particular may favor the hawk because populations of *Microtus* can persist in alfalfa fields.

3. Multi-year contracts may be preferable to permanent easements because we do not know whether the geographic range of Swainson's Hawk will continue to expand west. On the one hand, maintaining and enhancing suitable habitat in the inventory area may not be necessary if the hawk's range does not expand. On the other hand, if the hawk has a positive response to availability of nesting habitat and to particular crops (e.g., alfalfa), then it may make sense to attempt to establish a more permanent contract or easement.

4. Extensive information does not exist on availability of nesting substrate (large trees) for Swainson's Hawk in Contra Costa County (including the inventory area) and Alameda County, but habitat for nesting in Zone 6 is likely to be limited. Most of the resources available for Swainson's Hawk in Zone 6 may be associated with foraging. In addition, Swainson's Hawk in the inventory area may be competing for nesting sites with Red-tail Hawks (which probably have a competitive advantage) and Golden Eagles.

5. The HCP / NCCP should define and / or provide guidance about trees. For example, the HCP / NCCP might specify which species are preferable to maintain or plant and the size distribution of trees used by covered species. A decision algorithm also could be useful for determining which types of vegetation to maintain or plant under different sets of circumstances.

6. Permanent conservation easements would be less preferable than contracts if they limited the suite of tools available for adaptive management (e.g., fire and grazing). However, contracts are not permanent, and may not provide a good basis for long-term planning (in the context of an

HCP, for example). Maintaining the full suite of management tools, including fire and livestock grazing, is important regardless of whether easements or contracts are chosen.

ADAPTIVE MANAGEMENT AND MONITORING

• Will the adaptive management process outlined in Chapter 6, including the role of continued scientific feedback, ensure that good science is applied to implementation of the HCP?

1. No organization analogous to the Implementing Entity has ever existed. The draft Plan places very high expectations on the Implementing Entity.

2. Adaptive management cannot be achieved using existing entities, in part because those entities have overlapping jurisdictions or because they do not have sufficient expertise.

3. The HCP / NCCP needs to clarify how tasks associated with adaptive management will be coordinated (including subcontracting). For example, who is responsible for conducting the work, and who is responsible for payment? Who will pay for different types of surveys and monitoring? Will new conservation areas be developed, or will the conservation areas established by the HCP add to existing reserves?

4. The operational aspects of adaptive management cannot be separated from the structure of the implementing agency. The most important aspects of adaptive management are decision making and process. Too often, defining how decisions will be made and how the adaptive management process will operate is left until the end of the HCP / NCCP development process and treated as an afterthought. The interface between operations and decision making is the HCP / NCCP Governing Board, and so there must be two-way feedback between the Implementing Entity and the Governing Board.

5. Participants (e.g., city officials) may not be comfortable "sharing power with scientists." It must be it made clear to the permit holders that they are relinquishing some authority to the Governing Board. This knowledge gap can jeopardize the HCP / NCCP process. Although some aspects of implementation center around regulatory issues that do not directly involve scientists, scientific input is important for ensuring the defensibility of data collection and data analysis. The HCPA Team clarified that city and county officials are not likely to be interested in the day-to-day operations of the preserves, so the input provided by scientists is not likely to conflict with the interests of the permit holders.

6. It is impossible to provide guidance on collection of monitoring data without knowledge of the regulatory framework or how the information will be used. Status and trend monitoring is time consuming and costly and should be focused on data needs for defined purposes, because it simply is not possible to monitor all things at all times. It makes sense to conduct status and trend monitoring on carefully selected target species that are at the crux of a decision-making process.

Without information on trend, we cannot infer the status of a species. We may know that abundance of a particular species within the HCP area is low, but we do not know whether that low abundance is stable, increasing, or decreasing. Without information on trend it is not possible to determine whether a change in management is needed, nor is it possible to assess the effects of management actions. Too often, we assume that low abundance of a particular species means a management change is needed, but in fact the abundance of that species may be high given the environmental attributes of the site. Monitoring data do not tell you how to respond or what is possible ecologically, the data only suggest that there is a problem (e.g., a downward trend). Over time, with controls, it often is possible to evaluate the effects of changes in management using cause and effect monitoring. It is also essential to clarify the options that are available to respond to trends, such as adjusting rates of acquisition and development or implementing new management practices.

7. It also is difficult to provide guidance on collection of monitoring data without knowledge of management alternatives and protocols, such as responses to the spread of invasive non-native grasses. When multiple agencies are involved, who ultimately will be responsible for taking action? In other words, how will it be determined that some type of threshold for action has been crossed? Who will then commit to doing the management action? Ideally, there will be a way to seek consensus among scientific experts and stakeholders, but execution and follow-up (i.e., monitoring and adaptive management) will be the responsibility of the Implenting Entity.

8. Scientific advisory boards should include experts in the specific geographic / taxonomic focus of monitoring as well as individuals with knowledge of statistics and experimental design.

9. There needs to be explicit recognition during both development and implementation of the HCP / NCCP that the incidental take permit will be suspended if certain biological commitments, such as the stay ahead provisions, are not met.

10. Again, maintaining the full suite of management tools, including fire and livestock grazing, is essential to ensuring success of the HCP / NCCP. Although the Panel acknowledged the desire to add detail to performance indicators (Table 6.2), it is difficult to add detail to the adaptive management strategy during the planning phase. It may be preferable to provide general guidelines and principles in the HCP / NCCP but refrain from providing detailed prescriptions or requirements. Avoiding detail will give preserve managers greater flexibility during implementation to use the full range of management tools.

• Is the proposed Implementing Entity likely to serve as an effective institutional "home" for the adaptive management program? Will the body be responsive to adaptive management?

1. Again, realities about shared decision-making authority between scientists and politicians need to be made more explicit. The participants must acknowledge that they are both gaining power, in terms of endangered species permitting authority, giving up some power, such as day-to-day management decisions on HCP preserves.

2. Power sharing is unlikely to result in counties and cities withdrawing from the HCP / NCCP, but frankness is vital. Scientists often prefer to collect additional data before making a decision, so the implementation strategy should emphasize explicit rather than implicit decision–making.

3. Science advisors should continue to have a role in development of key management questions, direction of research, and interpretation of data.

4. It is difficult to identify research questions because the most important issues vary geographically, and we don't yet know where land will be acquired. Overall, the most important research questions might be related to determining trends for species of interest under current management.

5. It may be challenging to quantify whether implementation has been successful. It is relatively easy to map occurrences, but it is more difficult to obtain reliable data on trends and to connect trends to management actions. The adaptive management component of the HCP / NCCP should emphasize collection of data on trends and their connection to management.

6. Monitoring should address all biological goals of the HCP / NCCP; it would be helpful to revisit those goals in the adaptive management section. Monitoring should assess not only whether covered species are being maintained but also whether overall biodiversity is being preserved. Although the monitoring strategy inevitably will measure some surrogates of overall biodiversity, the more comprehensive goals of the HCP / NCCP should not be ignored, and it should be made clear that surrogates are exactly that—substitute measures of larger goals.

7. The U.S. Fish and Wildlife Service's five-point policy (2000) defines "effectiveness monitoring" as status and trend monitoring. To avoid confusion about the definition of effectiveness monitoring, it may be helpful to rename effectiveness monitoring as currently described in the HCP / NCCP. Measurement of the response of covered species to conservation measures could be called "validation monitoring," for example.

8. "Cause and effect monitoring," currently placed under the umbrella of "directed research," could be identified explicitly as a fourth form of monitoring in this HCP / NCCP.

9. All forms of management, including fire and grazing, should be available for adaptive management. New tools also should be developed. Flexibility of management options should be a factor in prioritizing land acquisition. Grazing should be available as a management tool on all lands that are acquired.

• Use of the adaptive management process to address data gaps and ecological uncertainty

1. There is a need for directed research (literature and field) on whether restoration of grassland is feasible on a large geographic scale. Before restoration of grassland or any other aim is stated as a goal or objective in the HCP / NCCP, it is important to verify that the goal or objective is ecologically feasible. The adaptive management process might include some pilot studies on restoration of native grasslands. Existing evidence suggests that restoration potential is highest in areas where viable populations of native species still exist, where annual non-natives do not

thrive, and when weather patterns over the current year or recent series of years have been favorable.

2. If the adaptive management process allows biological objectives to be adjusted, it is important to state explicitly where responsibility lies for making those decisions or adjustments. The decision-makers ideally should include trained scientists with detailed knowledge of the ecological system. Decision-making should be transparent, and also should be made using expert knowledge.

3. Sudden oak death is suspected to flourish under humid conditions. In some locations, this could be a mitigating factor in objectives related to increasing forest cover. Results of ongoing research on sudden oak death should be followed closely to assess risk in the HCP area.

4. An Implementing Entity can become a means for a large number of players to avoid taking responsibility, but the structure of the entity will have a huge effect on how the HCP / NCCP functions. If its scope is expanded, the entity could play an important role in collection of data on ecological restoration, with associated opportunities to secure outside funding.

5. Josh Collins and others are developing rapid assessment techniques for wetlands that may be useful.

Collins, J., M. Sutula, and E. Stein. 2003 (draft). Quality assurance project plan for the development of a wetland rapid assessment method in California. Draft manuscript submitted to California Environmental Protection Agency, San Francisco.

Mack, J.J. 2001. Ohio Rapid Assessment Method for Wetlands v. 5.0, User's Manual and Scoring Forms. Ohio Environmental Protection Agency Technical Report WET/2001-1. Ohio Environmental Protection Agency, Division of Surface Water, 401/Wetland Ecology Unit, Columbus, Ohio.

Pavlik, B.M. 2003. Botanical evaluation of wetland restoration projects in the San Francisco Bay Area. Report to the Regional Water Quality Control Board, Oakland, California. 47 pages.

Stein, D.D. and R.F. Ambrose. 1998. A rapid impact assessment method for use in a regulatory context. Wetlands 18:379–392.

6. Clarify that decadal land cover mapping emphasizes biological trends; urban and suburban development will be tracked as it occurs.

7. Thirty years is a short interval in the context of conservation. The HCPA should increase its emphasis on development of long-term funding mechanisms (i.e., beyond 15 or 30 years). At the same time, it is important to acquire land to ensure that something remains to conserve in 30 years. It may be possible to work with private entities, especially on issues related to ecological restoration, in order to augment agencies' current budgets for land acquisition and management.

OPEN DISCUSSION OF THE SCIENCE ADVISORY PROCESS

1. An additional meeting might have been useful. The process was a bit prolonged, so it was difficult to remember ideas and discussion points raised in previous meetings.

2. Some Panel members believed it would be useful for the Science Panel to communicate directly with political leaders involved in development of the HCP.

3. The Panel appreciated the HCPA Team's efforts to incorporate their comments and concerns.

4. More interaction with the audience (public) might have been useful.

5. The Panel asked the HCPA Team to keep them informed about the process, especially with respect to the adaptive management strategy.

6. Science is the basis of a good HCP, and the process of including science in this HCP was facilitated well. It was critical to involve scientists from the beginning, and this aspect of the HCP made Panel members more comfortable with the outcome. This is a good model for future HCPs.

7. It is important to have a public relations component of an HCP. Depending on the specific political climate, it may not be adequate to wait until forming a formal group of stakeholders that will provide input to elected officials and accept the Plan.

8. The presence of the HCPA Team and the public did not hinder the science advisory process overall. Although there are circumstances in which a scientist might prefer "closed doors"—if private meetings were legal and the audience volatile—there was no perceived need for closed doors during this process.

APPENDIX • PUBLIC COMMENT

Conservation strategy

(Brad Olson) Alameda whipsnake has been observed at the boundary of the Black Diamond Mines area. This should be considered as a meaningful new occurrence record that helps to validate model predictions.

Tradeoffs between land acquisition in Zones 2, 3, and 4 versus Zones 5 and 6

(Brad Olson) East Bay Regional Parks District and the state of California hope to create links between Mt. Diablo, Black Diamond, and Cowell Ranch. They are looking for an operator. In addition, the state park service may be able to contribute money to the HCP. Cowell Ranch is now a state park, and the agency may be looking for opportunities to maximize funding for this geographic area.

Effectiveness of implementing entity / adaptive management

(Brad Olson) There is ongoing criticism of grazing as a land management tool. In some cases, public agencies have difficulty obtaining permits for prescribed fire or for using herbicides as a land management tool. These tools may be necessary to achieve ecological goals, but their use is blocked, which compromises effectiveness. Development of the HCP / NCCP needs to consider what management options are likely to be available, which may be precluded, and what can be accomplished in the absence of those tools. In some cases, it may be necessary to acknowledge that certain objectives cannot be met.